

REMARKS

By the foregoing amendments to the claims, claims 1 and 3-6 have been amended. Claims 1-7 remain pending, while claim 1 being independent. Applicants note that no new matter has been added.

RESPONSE TO THE OFFICE ACTION**Formal Matters**

Applicants note with appreciation that the Office Action indicates acknowledgment of the claim of priority and that all certified copies of the priority documents have been received by the Office.

Applicants also thank the Examiner for considering the documents submitted in the Information Disclosure Statement of July 6, 2005 by returning a signed and initialed copy of the form PTO-1449. Applicants note that a Supplemental Information Disclosure Statement is submitted concurrently herewith.

Response to Rejections under 35 U.S.C. § 102(b)

Claims 1 and 4-5 are rejected under 35 U.S.C. § 102(b) as being anticipated by JP 2000-161647 ("JPN '647).

The Office Action asserts that JPN '647 discloses an exhaust gas processing device comprising all the recitations of present claim 1 including a flow rate of the exhaust gas between the heat transfer tubes of less than 10 m/s.

Applicants respectfully submit that JPN '647 fails to disclose all the recitations claimed in present claim 1 and thus, does not anticipate the claimed invention. This is especially so in view of the following.

The claimed invention solves the problems described at page 7, line 7 to line 17 of the specification, namely:

“However, in the aforementioned exhaust gas processing system provided with the GGH, the exhaust gas introduced to the GGH heat recovery device 4 installed at a side down stream of the air pre-heater 3 (a side upper stream of the dust collector 5) in the exhaust gas duct 30 contains a large amount of dust (10 to 50 g/m³N or so). This causes a problem of abrasion (due to ash erosion) over time with the heat transfer tubes 11 of the GGH heat recovery device 4 and their fins, and also the problem of clogging of the regions between the adjacent fins as a result that the dust and SO₃ contained in the exhaust gas adhere to the heat transfer tubes 11.”

In order to improve the deficiencies of the prior art, the invention provides an exhaust gas processing device comprising an air preheater, a gas-gas heater heat recovery device, a dust collector, a wet-type desulfurization device, a gas-gas heater re-heater using the heat medium supplied from the gas-gas heater heat recovery using heat transfer tubes provided in each of the gas-gas heater heat recovery device and the gas-gas heater re-heater to circulate the heat medium through the heat transfer tubes *wherein the heat transfer tube of the gas-gas heater heat recovery device is squarely arranged in the gas flow direction in such a manner that the inter-tube flow rate, which is the flow rate of the exhaust gas between the heat transfer tubes adjacent in the direction orthogonal to the gas flow direction, can be less than 10 m/s.*

The Office Action relies on the discussion in paragraph [0027] of JPN ‘647 to assert that this document recites flow rates less than 10 m/s. However, the Action appears to be inaccurate inasmuch as the flow rates discussed in paragraph [0027] refer to flow rates after the desulfurization unit, i.e. several units downstream from the gas-gas heater, which further includes steam gas heater (SGH) 55. Applicants note that a steam gas heater (SGH) 55 as discussed in [0027] and displayed in figure 9 of JPN ‘647 is not an element of present claim 1.

Therefore, gas flow rates discussed within that SGH unit are not anticipatory to any recitation of independent claim 1.

Furthermore, Applicants note that JPN '647 is silent regarding exhaust gas flow rates through gas-gas heater recovery (GGH) unit 4. Thus, JPN '647 does not anticipate the recitations of claim 1 appurtenant to flow rates through the GGH units.

The exhaust gas introduced to the GGH heat recovery device 4 installed at a side down stream of the air pre-heater 3 contains a large amount of dust (10 to 50 g/m³N or so) but the gas treated at the dust collector 5 and desulfurization device 7 and introduced to "the GGH re-heater 8" contains an amount of dust approximately 20 mg/m³N or lower.

The inter-tube exhaust gas flow rate between the heat transfer tubes orthogonal to the gas flow direction is kept 10 m/s or lower at "the GGH heat recovery device 4" in the present invention and the effect of the invention is described for example at page 14 line 11 to line 17 in the specification:

"Therefore, as a precaution against ash erosion due to the dust contained in the gas, the inter-tube flow rate of the gas which passes through the heat transfer tubes (fin-equipped heat transfer tubes) of the GGH heat recovery device is regulated at 10 m/s or lower, which makes it possible to prevent abrasion of the heat transfer tubes of the GGH heat recovery device, while keeping the dust removing efficiency high."

In view of the foregoing, Applicants respectfully submit that JPN '647 fails to disclose the exhaust gas flow rates through the GGH units and therefore, does not anticipate present claim 1 nor dependent claims 4 and 5. Accordingly, a rejection under 35 U.S.C. § 102(b) is not proper. Withdrawal of the rejection of claims 1, 4, and 5 are respectfully requested.

Response to Rejections under 35 U.S.C. § 103(a)

The Office Action asserts the following obviousness rejections:

Claim 2 is rejected under 35 U.S.C. § 103(a) as being obvious over JPN '647 in view of U.S. Patent No. 6,096,279 to Iwashita et al. ("US '279");

Claim 3 is rejected under 35 U.S.C. § 103(a) as being obvious over JPN '647 in view of JP 09-280540 ("JPN '540");

Claim 6 is rejected under 35 U.S.C. § 103(a) as being obvious over JPN '647 in view of JP 2000-304238 ("JPN '238"); and

Claim 7 is rejected under 35 U.S.C. § 103(a) as being obvious over JPN '647 in view of JP 2000-320998 ("JPN '998").

Applicants respectfully traverse the obviousness rejections. As discussed above, JPN '647 fails to disclose all the recitations of sole independent claim 1. This deficiency is not cured by any of the secondary documents cited above under the 35 U.S.C. § 103(a) rejections.

Applicants note that all of the secondary documents, i.e., US '279, JPN '540, JPN '238, and JPN '998, are silent as to flow rates of exhaust gases. Furthermore, none of these documents disclose or suggest to motivate one of ordinary skill in the pertaining art to arrange the heat transfer tubes such that "the inter-tube flow rate, which is the flow rate of the exhaust gas between the heat transfer tubes adjacent in the direction orthogonal to the gas flow direction, can be less than 10 m/s" as recited in present claim 1.

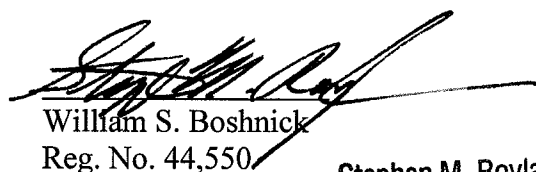
For at least the foregoing reason, the Office Action fails to disclose all the recitations of the present claims and withdrawal of the rejections is respectfully requested.

CONCLUSION

In view of the foregoing, it is submitted that none of the documents of record, either taken alone or in any proper combination thereof, anticipates or renders obvious the present invention, as recited in each of claims 1 - 7. In addition, the applied documents of record have been discussed and distinguished, while significant claimed features of the present invention have been pointed out.

Accordingly, reconsideration of the outstanding Office Action and allowance of the present application and all the claims therein are respectfully requested and now believed to be appropriate.

Respectfully Submitted,
Kouji MURAMOTO et al.



William S. Boshnick
Reg. No. 44,550

Stephen M. Roylance
Reg. No. 31,296

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GREENBLUM & BERNSTEIN, P.L.C.
1950 Roland Clarke Place
Reston, VA 20191
(703) 716-1191